

## Pericardial Effusion



### Pericardial Effusion

Pericardial Effusion is the inappropriately large volume of fluid that forms in the sac around the heart (called the "pericardium"). As this fluid volume increases it puts pressure on the heart and impacts the filling of the heart.

In order to understand how this disease may affect your dog, it is important to understand normal circulation in the heart. Blood drains from the body into the right collecting chamber (called "atrium") where it passes through the tricuspid valve and into the right pumping chamber (called "ventricle"). From here, blood is pumped into the pulmonary artery and subsequently to the lungs where it picks up oxygen. The oxygenated blood then drains passively into the left atrium, through the mitral valve, and into the left ventricle. The left ventricle then pumps the blood through the aorta and back to the body. When pericardial effusion develops around the heart, the heart chambers cannot fill properly.

### Causes of Pericardial Effusion

There are a number of causes of pericardial effusion but many of these do not cause enough fluid to compress the heart. The most common causes of fluid that compresses the heart include:

- Neoplastic causes (hemangiosarcoma, chemodectoma, mesothelioma and less commonly, lymphoma)
- Idiopathic causes (meaning there is no known cause)
- Infectious and coagulopathic (inappropriate blood clotting) causes are possible but less likely

### Signs of Pericardial Effusion

Pericardial effusion often presents as an emergency due to the impact on the heart. The most common signs are weakness, lethargy, and collapse.

### Treatment for Pericardial Effusion

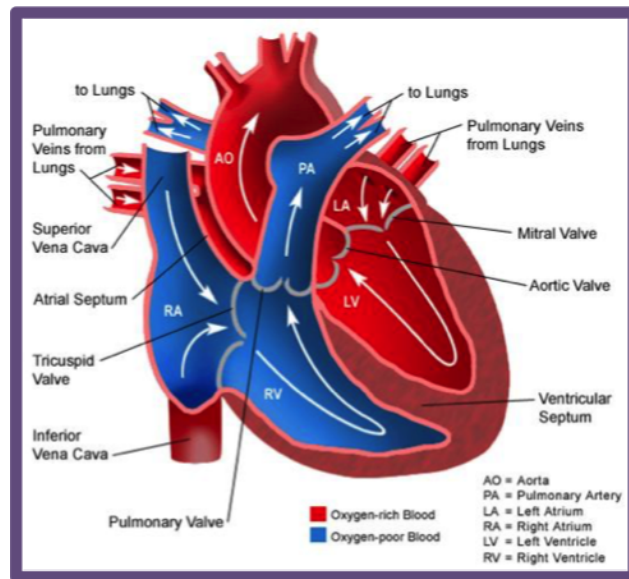
The emergency treatment is to perform a pericardiocentesis. This is performed by inserting a needle, or catheter into the sac around the heart to remove the fluid to alleviate the compression on the heart. This fluid is often sent out for analysis to provide insight into the cause of this condition.

The prognosis is variable depending on the underlying cause:

•**Idiopathic Pericardial Effusion:** The underlying cause of this disease process is unknown. If the pericardial effusion recurs, then removing part of the pericardium (called a "pericardial window") or in some cases, removing almost all of the pericardium (called "subtotal pericardectomy") may be necessary to eliminate the symptoms associated with this disease.

•**Hemangiosarcoma:** This is a tumor that is typically associated with the right atrium/auricle in the heart. It is a fast growing tumor that metastasizes (spreads to other parts of the body) rapidly. If the tumor is surgically resectable (removable) then the best treatment option includes surgical resection of the tumor followed by chemotherapy. Chemotherapy alone, with or without removal of part of the pericardium, may decrease the tumor growth rate and effusion rate. Overall, the prognosis is poor to grave.

•**Chemodectoma:** This tumor is slow growing and slow to spread. Brachycephalic breed dogs (dogs like Boxers and English Bulldogs) are overrepresented for this tumor type. Dogs with pericardial effusion due to a chemodectoma often require a partial removal of the pericardium to alleviate symptoms. The tumor itself is unlikely to be surgically resectable due to the type of cells that make up the tumor as well as the location.



*Flow of blood through a normal*

*heart.*